

Energy fact sheet

19–25 September 2020

Weekly electricity demand:

101%

of historical demand.

Weekly fuel and automotive spend:

-10%

change on the same week last year

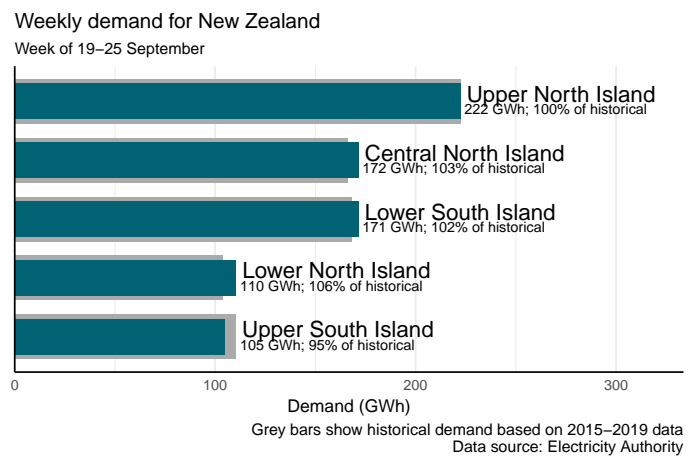
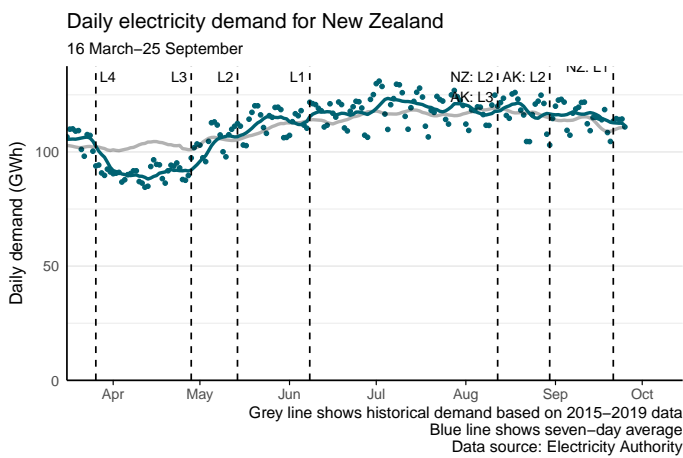
Weekly gas production:

102%

of historical production.

The analysis in this report is based on the state of the energy sector in New Zealand. It covers data up to the 27th of September. Weekly fuel and automotive spend was significantly affected by the Auckland Level 3 lockdown but has recovered to the same level as the rest of New Zealand now. Gas production is recovering from the effect of maintenance at the Pohokura field.

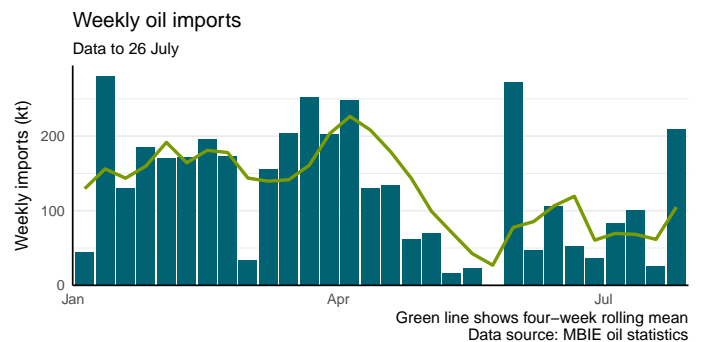
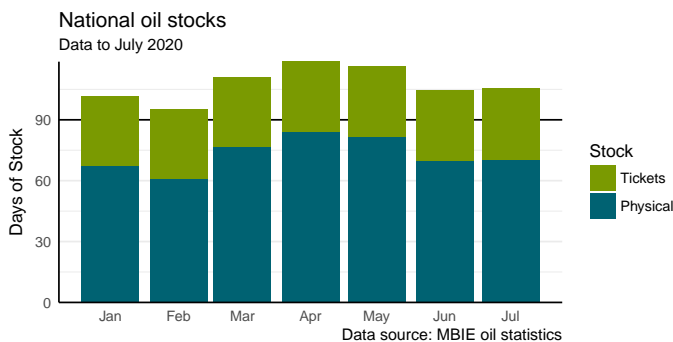
Electricity demand



New Zealand's electricity demand for the week was **781 gigawatt-hours**.

National electricity demand sits at 101 per cent of historical levels for this time of the year.

Oil stocks

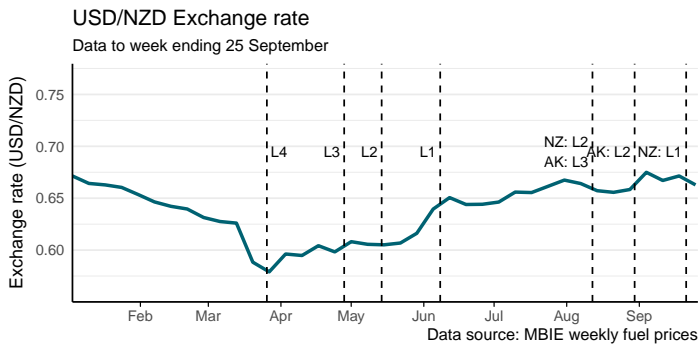
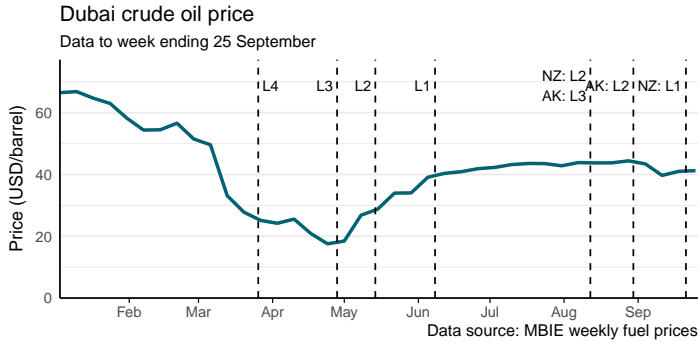
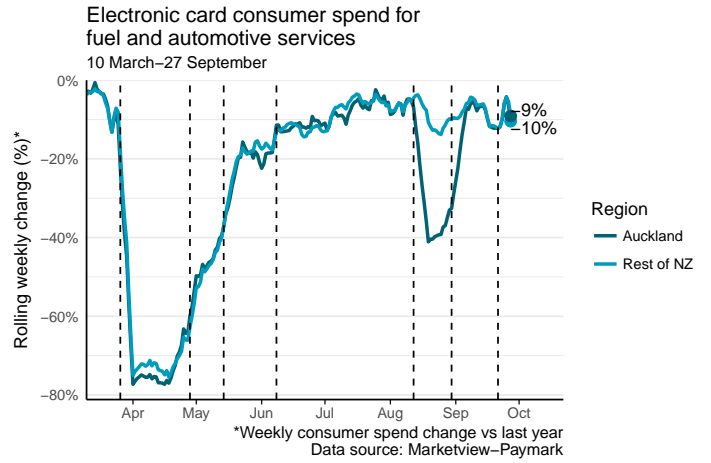
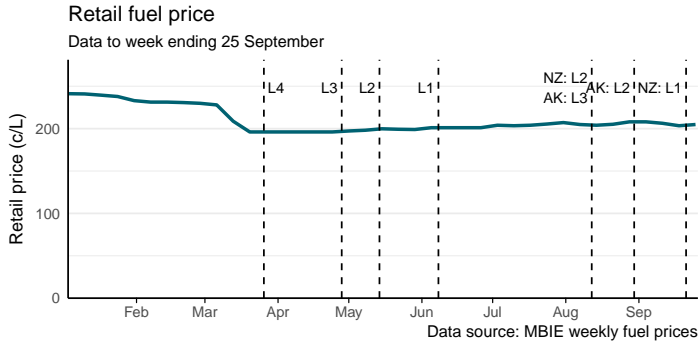


New Zealand continues to maintain oil stocks, both physical and in tickets, to ensure the country has access to at least ninety days of net oil imports.

June and July saw a large decline in oil imports. This is largely a result of lower demand due to reduced activity under COVID-19 Alert Levels. The decrease in imports saw the Marsden Point oil refinery put their processing units on standby during July. The effect of this can be seen on page 3 as periods of decreased gas use by the Petroleum Refining and Petroleum and Coal Product Manufacturing industry.



Retail fuel

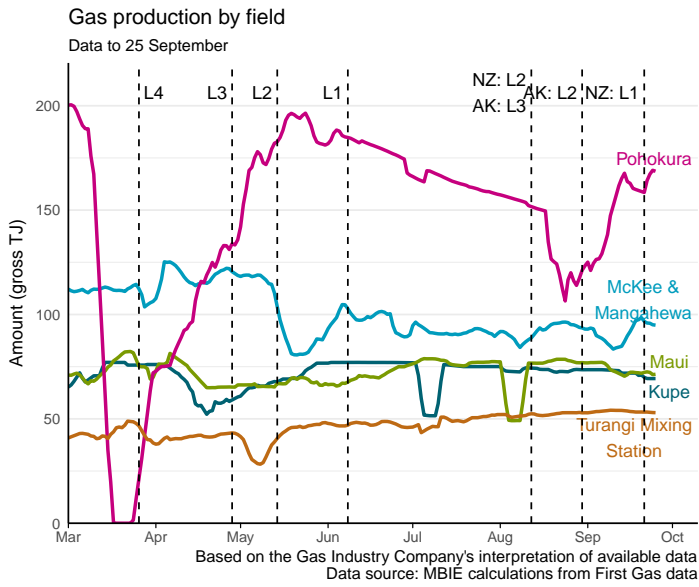
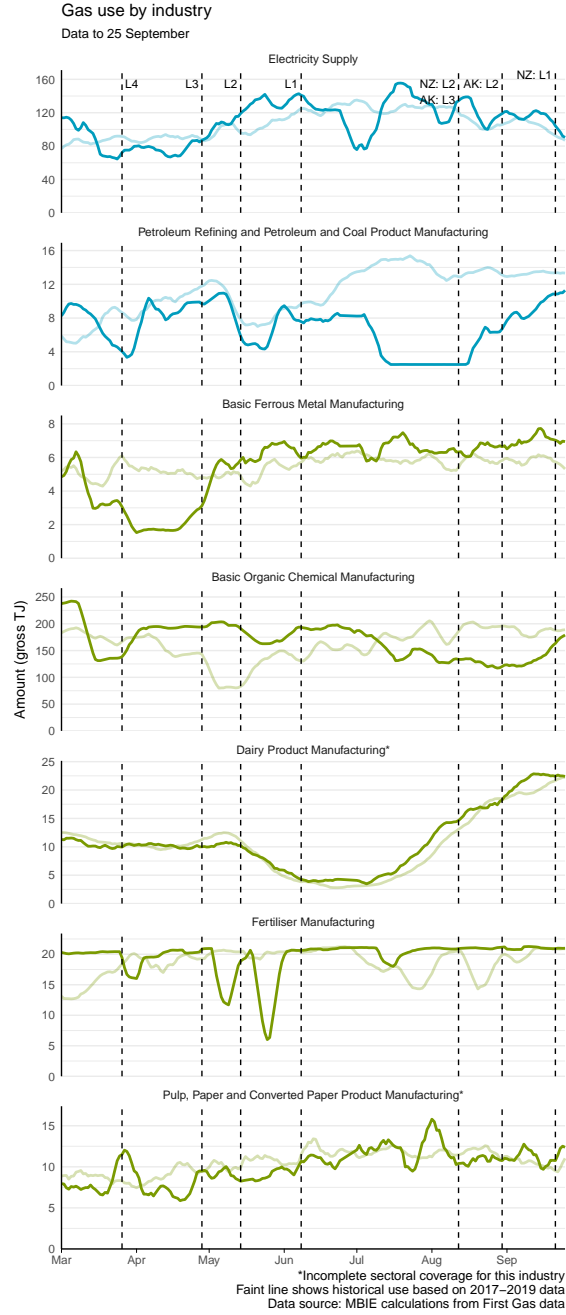
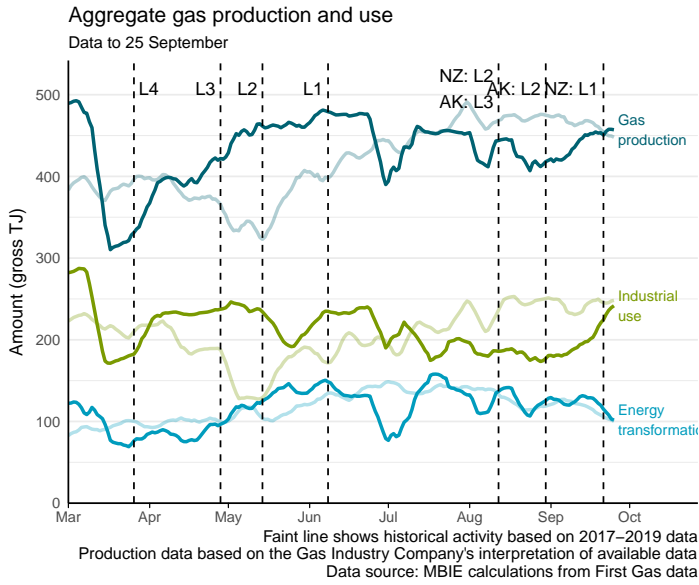


Consumer spending on fuel and automotive services decreased significantly as a result of the Auckland lockdown. In Auckland, fuel and automotive spend dropped as much as 40 per cent compared to that same week last year. Excluding Auckland, the rest of New Zealand saw much less of a drop. Now Auckland has returned to the same level of spend as the rest of NZ.

International oil prices and retail fuel prices have remained relatively steady since they first decreased in March this year.



Gas production and use



Gas production has seen a significant drop in the last month as a result of Pohokura maintenance. Maintenance work at Pohokura finished on the 17th September. Gas production at Pohokura has been increasing since.

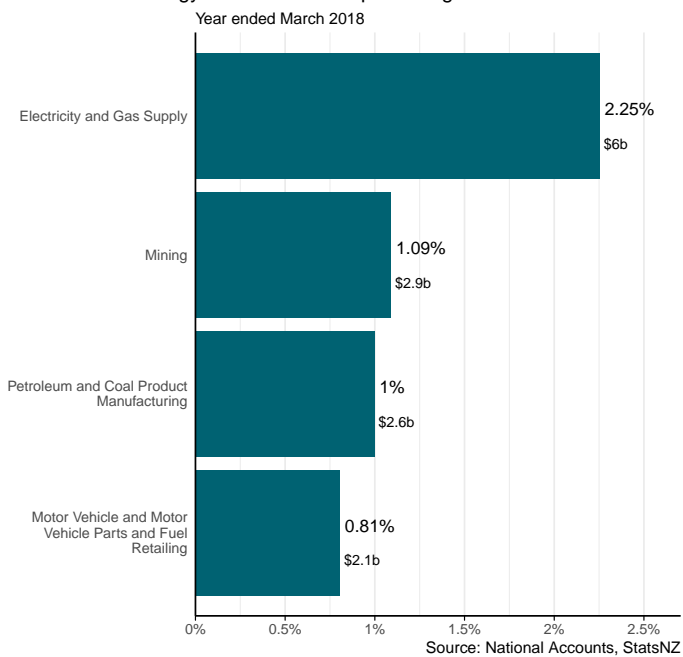
Gas use for energy transformation activities follows the trends of electricity generation. Gas use for Petroleum Refining and Petroleum and Coal Product Manufacturing industry has been increasing in the last few weeks but is still down on the historical average.

Industrial gas use has been stable. As we come into the end of winter, gas use in dairy product manufacturing has been increasing steadily. This has the effect of offsetting the fall in gas use for basic organic chemical manufacturing, which is largely caused by Methanex decreasing their production at their Motunui site.

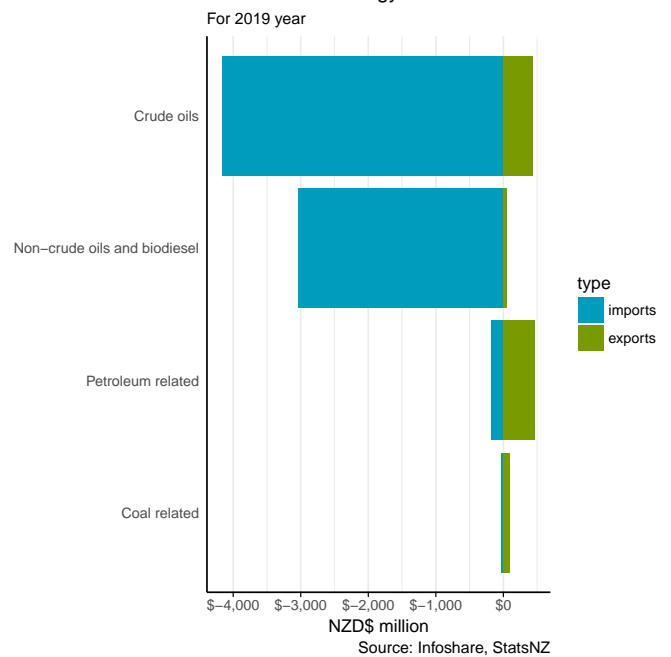


The Energy Sector through an economic lens

Energy Subsectors as a percentage of New Zealand's GDP

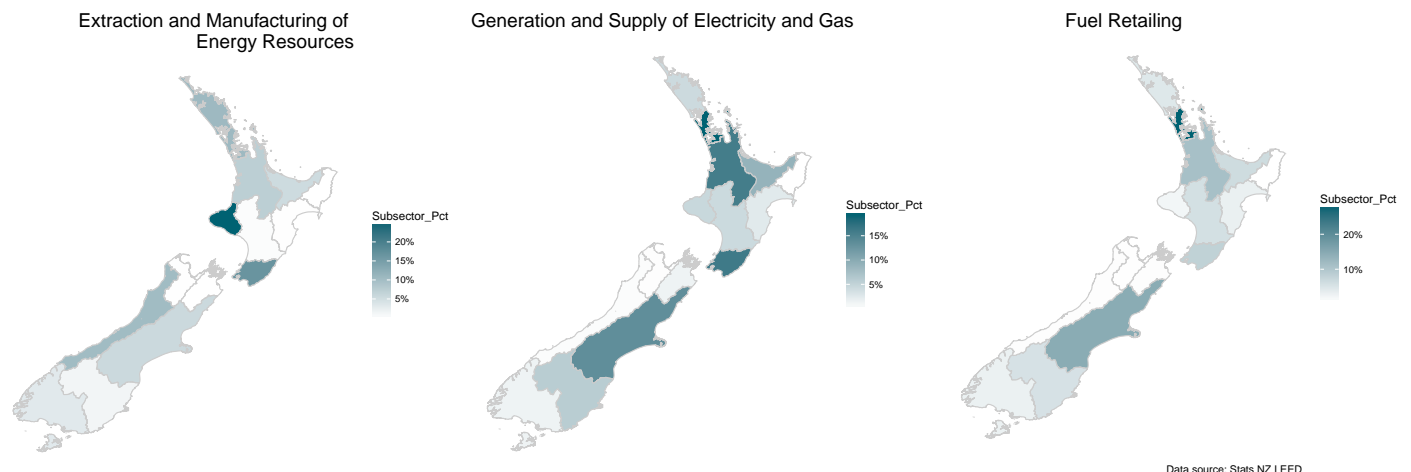


Trade of Energy Resources



In the year ended March 2018 the Energy Sector generated \$13.6 Billion for New Zealand nominal GDP, 5.15 per cent of total. Of this, 44 per cent was in the supply of electricity and gas. As shown by the GDP graph, the other three subsectors of the energy sector each contribute between \$2 and \$3 Billion to GDP. New Zealand imports significantly more than it exports. Imports are primarily comprised of Crude and Non-crude oils, totalling \$7.1 billion of the \$7.4 billion imported in 2019. Exports, by comparison were much smaller totalling \$1.1 billion dollars. Most of this is crude, \$429 million, and petroleum related products, of which included the export of \$103 million of petroleum coke and \$359 million of petroleum gas.

Employment



The maps above show how total employment in each subsector of the Energy sector is split across regions. In 2018 the Energy sector employed 22,000 people in New Zealand. This included 3,000 employed in the extraction and manufacture of energy resources, 9,000 in the generation and supply of electricity and gas, and 10,000 in fuel retailing. As shown, certain regions outside the major cities are significant employers in the Extraction and manufacturing subsector. Taranaki accounts for 25 per cent of this employment, primarily in oil and gas extraction. Coal mining in the West Coast and Oil refining in Northland each employ 10 per cent of the labour force in this subsector. Waikato and the Bay of Plenty are the two largest employers in the generation of electricity. However, within the generation and supply subsector, most employment is actually in distribution and transmission. In this type of work employment is more correlated with the location of company headquarters, as with Transpower in Wellington and to a certain extent lines companies in regional areas. Employment in the fuel retailing subsector is not dependent on the regional availability of any raw resource and as shown in the map, it is more correlated to population sizes of regions.



Data sources and glossary

Electricity demand data

Electricity demand data is taken from the Electricity Authority's Electricity Market Information¹ website. Historical demand is calculated based on data for the period 2015–2019. We use final pricing (ie. non-reconciled) data to calculate demand, and compare against final pricing data for previous years to ensure internal consistency in our comparisons. Half-hourly demand data is smoothed using a rolling mean, to de-emphasise outliers (which are generally assumed to be artefacts of the non-reconciled data). Daily demand is calculated as a seven-day average, to remove weekly seasonal effects.

Half-hourly demand data is compared against data from the same day of the week. Daily data is compared against seven-day average demand from the same day of previous years.

The Electricity Authority divides New Zealand into five zones for measurement purposes. These zones (and the regions they cover) are:

- Upper North Island (Northland and Auckland)
- Central North Island (Waikato, Bay of Plenty, Gisborne, central and northern Hawke's Bay, northern Manawatu-Wanganui)
- Lower North Island (Taranaki, central and southern Manawatu-Wanganui, southern Hawke's Bay, Wellington)
- Upper South Island (Marlborough, Tasman, Nelson, West Coast, central and northern Canterbury)
- Lower South Island (southern Canterbury, Otago, Southland)

Oil data

Oil stock and import data is taken from the MBIE oil statistics tables, which in turn are derived from data provided by Coastal Oil Logistics Limited, Refining NZ, and all major fuel importers. According to New Zealand's international energy programme treaty with the International Energy Agency, we are required to hold oil stocks equivalent to at least 90 days of our prior year's daily net oil imports. We hold these stocks in both physical product and tickets. Tickets are agreements with external parties to import oil at a fixed price.

Fuel price data

Weekly retail fuel price, Dubai crude oil price, and exchange rate data are taken from MBIE's weekly fuel price statistics.

Electronic card transaction spend data

Electronic card transaction (ECT) spend data is provided by MarketView, and is based on electronic card transaction data processed by Paymark, one of the two major electronic transaction companies in New Zealand. It covers approximately sixty per cent of electronic card transactions processed in New Zealand, and excludes cash spending, direct online bank transactions, and payments made via alternative payment networks (such as other electronic transaction companies). This data should be treated as indicative of trends in retail spend, rather than an absolute figure.

Daily values are calculated using a rolling seven-day average spend, to account for weekly seasonal effects. These values are compared against a nominal "pre-lockdown" level, defined as the week ending 16 March 2020. Spend data includes all transactions made at businesses categorised as "fuel and automotive": this means that, for example, food products purchased at service stations will also appear in this category.

If you are interested in looking further into this data please view the MBIE card spend dashboard at https://mbienz.shinyapps.io/card_spend_covid19/.

Gas data

Gas data is calculated based on data sourced from First Gas, and covers both production for six of the largest gas fields in New Zealand, and use by large-scale industrial consumers.

Gas production data covers production from Pohokura, McKee & Mangahewa, Maui, Turangi Mixing Station, and Kupe fields.

Industrial and energy transformation use are reported for a number of large-scale industrial consumers in a number of energy-intensive industries, but this does not cover all industrial gas use, nor does this measure include residential use. Natural gas is only available in the North Island.

It is also important to note that gas use data is based on deliveries. This means that for some industries it is not directly comparable with MBIE's sectoral gas consumption statistics as this can include non-energy use or energy transformation (eg. electricity generation) use, which is reported elsewhere in the energy balances reporting framework used by MBIE.

¹<http://emi.ea.govt.nz/>



Economic data

The economic data is based on data from StatsNZ. The source for that specific data is shown in the bottom left of each graph. More information is provided below:

- Energy Subsectors as a percentage of New Zealand's GDP: StatsNZ, National Accounts Series, GDP(P), Nominal, Actual, ANZSIC06 detailed industry groups (Annual-Mar) (tbl. ref: SNE048AA)
- Trade of Energy Resources: StatsNZ's international trade dashboard statisticsnz.shinyapps.io/trade_dashboard/
- Employment maps: This is sourced from a specialised dataset based on StatsNZ's LEED data.

